PATENT SPECIFICATION (11) 1 544 630

1 544 630

(21) Application No. 23756/75 (22) Filed 31 May 1975
4832/76 7 Feb. 1976
(23) Complete Specification filed 27 Aug. 1976
(44) Complete Specification published 25 April 1979
(51) INT. CL.² A47G 7/02 //
B26D 1/02 1/06
(52) Index at acceptance
A4U 30 32
B4B 1D2 1F 1J2 1P3 22D2 22F 22G7 22Q

(72) Inventor: STEPHEN RICHARD JAMES

(19)

(54) FLOWER HOLDERS

(71) We, JAMES NAYLOR LIMITED, a British Company, of Unit 47, Enfield Industrial Estate, Hewell Road, Redditch, in the County of Worcester, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to flower holders and particularly, although not exclusively, to flower holders in the form of bases for funeral wreaths. Specifically, the invention relates to flower holders of the type, hereinafter referred to as being "of the type described", comprising a water-impermeable supporting container and a body of water-absorbent material, as hereinafter defined, disposed in the container which covers only the base and lower part of the water-absorbent material.

The term "water-absorbent material" is used throughout this specification to mean materials into which the stems of flowers may be pushed and which are capable of supporting the stems as well as absorbing water. An example of such a material is the open-cell plastics foam sold under the trade name "OASIS" by V. L. Smithers A/S of Denmark.

According to the invention we provide a flower holder of the type described in which the water absorbent material is in a state of compression.

According to another aspect of the invention we provide a method of making a flower holder of the type described comprising inserting the water absorbent material into the container so that said material is in a state of compression within the container.

This loading of the material in compression ensures the rigidity of the holder and assists in ensuring that the material remains in position in the container.

Although adhesive is preferably used to secure the material in the container, it may be possible in smaller sizes of holder to rely totally on the compressive loading in the material to maintain the material in position.

When making an annular flower holder, e.g. an annular wreath base, the water absorbent material may be made up of individual arcuate pieces which may be assembled in an end-to-end relationship to give the desired annular form and a compression ring may then be placed around the sections to maintain the sections in the desired annular configuration and to load the sections end to end in compression. The sections may then be placed over the container whilst in the compression ring and moved from the ring into the container so that the material is in compression when in the container.

When manufacturing, for example, a twelve inch diameter annular holder the radial width of the conainer may be of the order of 2" and the annular material will be cut slightly oversize, typically 1/16" on each of the inside and outside diameters, so that the material is compressed in the compression ring and then further compressed when it is pressed into the container.

Preferably the container is a plastics moulding and the sides will have a draft of e.g. 8° inclusive, to facilitate its removal from the mould. The sides of the container will thus be inclined to the base. Since the inner and outer peripheral surfaces of the annular pieces of material are not inclined prior to being pressed into the container, the inclined sides thereof will compress the material.

In the method of manufacture of an annular holder the water absorbent material may be regarded as undergoing a two-stage compression, the first compression taking place in the compression ring and the second compression occurring when the material is

pressed from the compression ring into the container. Instead of this two-stage compression the water absorbent material may be compressively loaded simply by cutting the material slightly oversize and pressing this oversize body of material into the container.

When making a holder in the form of a cross, the water absorbent material may be in the form of three strips, one long strip which extends from end to end of one of the arms of the cross and two shorter strips disposed at right angles to and on opposite sides of the long strip and which extend from the long strip to the ends of the other arm of the cross. If each strip is cut slightly overlong with respect to that part of the container in which it is to be positioned, the strips will be subjected to endwise compressive loading when in situ in the container. Preferably the strips are precompressed in a jig before being inserted into the container. The jig may be merely a cross-shaped frame.

This compressive loading on the material can be further increased by inclining the ends of the arms of the container so as to compress the strips as they are inserted into the container.

The container may be a plastics moulding and the sides and the ends of the arms thereof may have a draft, e.g. 8° inclusive. To avoid bulging of the sides of the arms of the container the strips of water absorbent material may be of a tapering cross-section.

At least one edge of the container may be formed with an outwardly extending flange.

In an annular flower holder the inner and outer edges of the container may be provided with flanges. This increases the rigidity of the container thus allowing the required rigidity to be achieved without excessive weight. Also, the ease of handling of the holder is improved since when the holder is gripped with the channel in the palm of the hand the flanges tend to keep the fingers away from the uncovered side walls of the water absorbent material thus stopping the fingers from penetrating into the material.

Another advantage of the use of flanges is that these provide physical support for the stems of flowers inserted into the uncovered lower side portions of the water absorbent material and the flanges may also be used as an anchor for a support for the holder.

Also a mesh cage may be secured over part or all of the part of the water absorbent material which projects from the container, the mesh cage being used to assist in locating flower stems in the water absorbent material and also enabling additional blocks of water absorbent material to be secured in position on top of the material inserted into the container.

The base of the container may be provided with feet having friction material for engaging a supporting surface.

Such feet may be blocks of sponge rubber which are bonded to the base of the container. The feet prevent the slipping of the flower holder on any object on which it is placed, e.g. a coffin.

The present invention will now be described by way of example with reference to the accompanying drawings in which:—

FIGURE 1 is a perspective part-sectional view of part of an annular flower holder in the form of a wreath base embodying the present invention;

FIGURE 2 is an underplan view on a reduced scale of the wreath base shown in part in Figure 1;

FIGURE 3 is a vertical section showing a support for the wreath base shown in part in Figure 1;

FIGURE 4 is a perspective, part-sectional view of a modification of the wreath base shown in part in Figure 1;

FIGURE 5 is a diagrammatic side view of a machine used to cut out arcuate pieces of water absorbent material used in the wreath base shown in part in Figure 1;

FIGURES 6 to 10 are diagrammatic views showing the sequence of the operation of the machine shown in Figure 5;

FIGURE 11 is an underneath perspective view of a cutter used in the machine shown in Figure 5;

FIGURES 12 to 16 diagrammatically illustrate stages in the manufacture of the wreath base shown in part in Figure 1;

FIGURE 17 is a perspective view of a wreath base in the shape of a cross embodying the invention;

FIGURE 18 is a plan view of the container forming part of the wreath base shown in Figure 17;

FIGURE 19 is a sectional view on the line A-A of Figure 17;

FIGURE 20 is a perspective view of part of a modified container;

FIGURE 21 is a perspective view of a cutting machine used in the manufacture of the wreath base shown in Figure 17;

FIGURE 22 is a plan view of the machine shown in Figure 21;

FIGURE 23 and 24 are side and plan views respectively of a cutting head forming part of the machine shown in Figures 21 and 22; and

FIGURE 25 is a perspective view, partly broken away, of a wreath base in the shape of a cushion embodying the invention.

Referring to Figures 1 and 2, these show a wreath base comprising a ring 1 of water absorbent material bonded within a water impermeable annular container 2 of plastics

material. Each rim of the container is shaped to provide an outwardly extending flange 3.

The water absorbent material is that sold by Messrs V. L. Smithers A/S under the trade name "OASIS". The upper surface 4 and approximately half of the sides 5 of the ring 1 project from the container so that the stems of flowers shown at 6 may be inserted into the ring. As can be seen at 6a in Figure 1, the flanges 3 provide additional support for the stems of flowers inserted into the lower regions of the sides 5 of the ring.

The flanges 3 also increase the rigidity of the container 2 and assist in preventing the fingers squashing the sides of the ring 1 when the wreath base is gripped with the container 2 in the palm of the hand.

Figure 2 shows feet 7 in the form of blocks of sponge rubber material which are bonded to the base of the container 2. These feet 7 provide sufficient grip to prevent the wreath base sliding along any article on which it is placed. This is particularly important when it is desired that a wreath built up on a wreath base in accordance with the present invention should remain in a particular position on a coffin during transit of the coffin. The feet also prevent damage to the polished surface of the coffin.

Figure 3 shows a support 8 in the form of a strip of plastics material which is provided at one end with a hook portion 8a which is arranged to be a tight fit on the inner flange 3 of the container 2. The support is arranged to support the wreath base in an inclined position as shown in Figure 3.

Figure 4 shows a plastics cage 9 which is provided with hook-shaped flanges 10 which secure the cage in position on the flanges 3. The cage gives increased support to the stems of flowers 6 and secures an additional block 11 of material on top of the ring 1 in order to locally increase the depth of the water absorbent material.

The cage of Figure 4 may be arranged to extend over part only of the block 11 or, alternatively, may extend over the entire block. Alternatively, the cage may be arranged to extend over the top of the ring. When used without the additional block 11, the height x of the cage 9 will be reduced so that the cage extends over the top of the ring 1 as shown at 9' in Figure 4.

The wreath base shown in Figures 1 and 2 may be manufactured using the method described with reference to Figures 5 to 16.

Referring now to Figure 5, this shows a machine comprising a bed 12 and a cutter member 13 which is movable towards and away from the bed. The cutter member 13 carries a plurality of cutters 14 of the form shown in Figure 11. Each cutter is of tubular arcuate form and its lower edges 15 are arranged to cut through a sheet of water absorbent material is will be described.

In Figure 6 to 10 the cutter member is shown as carrying only five cutters 14 but in practice a considerably greater number of cutters will be carried by the cutter member. The cutter member is moved towards and away from the bed by means of a fluid pressure operated jack 16. The machine includes an ejector plate 17 which, as shown in Figure 6, is supported on top of the cutter member 13. The ejector plate has four depending ejectors 18, each of which is received in one of the tubular cutters 14. Figure 6 shows the cutter member in its raised position with a sheet 19 of water-absorbent material between the cutters and the bed 12. If the cutter member 13 is now moved downwardly towards the bed 12 as shown in Figure 7 the cutters 14 pass through the sheet 19 thus cutting out arcuate pieces of the material. The ejector plate 17, however, remains in the position shown in Figure 6 because the ejectors 17 remain resting on the upper surface of the sheeet 19.

The cutter member 13 is now retracted by the jack 16 as shown in Figure 8. The material in the cutters is lifted up with the cutters due to being frictionally engaged therein and this results in the ejector plate 17 also being lifted up due to the fact that the ejectors 18 are still resting on the upper surfaces of the arcuate pieces of the material in the cutters.

The jack 16 is supported on a fixed member 35 which also supports stripper members 20 which retain, on the bed 12, waste portions 21 of the material between the arcuate pieces which have been cut out.

There are further stripper members 22 to retain the waste pieces at the edges of the strip. As shown in Figure 9, these waste pieces 21 are moved sideways across the bed by means of a pusher 23. After the removal of the waste pieces, further jacks 24 move the ejector plate 17 downwardly relative to the cutter member as shown in Figure 10 and the ejectors 18 eject the arcuate pieces 120 from the cutters on to the bed 12.

Referring now to Figure 5, the sheet 19 is arranged to be moved stepwise under the cutter by means of a pusher 24 which is moved forwardly by a spring pawl 25 engaging in notches under an indexing ramp 26 secured to the pusher 24. The pawl is moved forwardly by means of a fluid pressure operated cylinder 27 and a further sub-cylinder 28 is arranged to retract the pawl from engagement with the ramp 26 when the pusher 24 has completed its full range of movement to the left as shown in Figure 5. The indexing ramp 26 is urged to the right in the Figure by means of a weight 29

passing over a pulley 30.

It will be seen that with the pawl in the position shown in Figure 5, extension of the cylinder 27 will move the indexing ramp 26 to the left and cause the pusher 24 to push a length of the sheet 19 under the cutter member. After each extension of the cylinder 27 the cylinder is retracted to cause the pawl 25 to engage behind the next notch on the ramp 26 ready to push forward the next length of the sheet 19 under the cutter member for the next cutting operation. An interlock mechanism (not shown) is provided which holds the ramp against displacement to the right by the weight 30 each time the cylinder 27 is retracted to engage the pawl behind the next notch.

The machine includes a magazine 30 having a number of superposed sheets of material indicated at 31. When one sheet has been used and the pusher 24 has thus completed its full range of movement to the left the cylinder 28 is operated to disengage the pawl 25 from the ramp 26 and the pusher is retracted to the right by the weight 30 so as to allow the lowermost sheet 31 contained in the magazine 30 to drop on to the bed into a position to be pushed stepwise by the pusher 24 under the cutter member 13. As a fresh length of each sheet comes under the cutter the arcuate pieces which have already been cut are pushed out on to a bench 36 as shown in Figure 5 ready for collection and for the next step in the method of assembly.

The ring 1 is constructed from three identical arcuate pieces 120 of material placed in end to end annular relationship. These pieces are assembled in a shallow recess 121 in a plate 122 as shown in Figure 12. A ring 123 is then forced over the pieces 120 as shown in Figure 13 to maintain the pieces in the annular configuration and also to compress the pieces end to end. The ring 123 has a tapering lead-in portion 124 and an axially extending flange 125 which co-operates with the container 2 of the flower holder in which the ring is eventually to be positioned, as shown in Figure 15.

The pieces 120 are pushed fully into the ring 123 as shown in Figure 14 and the ring is then inverted and placed on top of a container 2 as shown in Figure 15, the flange 125 on the ring 123 locating over the outer flanges 3 of the container. Prior to the positioning of the ring 123 on the container, the interior thereof is coated with adhesive. The pieces 120 are then pressed from the ring 123 into the container 2 by a movable platen 126 which is advanced towards a fixed platen 127 in the direction of the arrow B of Figure 15. Figure 16 shows the pieces finally received in the container. The flower holder is then completed by bonding the feet 7 to the base of the trough 2.

Referring to Figures 17 to 19, these show a wreath base in the shape of a cross which comprises a plastics container 201 and three strips 202, 203, 204 of OASIS foam bonded in the container under enwise compressive loading.

As can be seen from Figures 18 and 19, the portion 206 of the container where the arms of the cross intersect is provided with reinforcing ribs 205. These ribs are integral with the base of the container. The ribs strengthen the relatively weak portion 206 and assist in preventing the tendency of the ends of the arms of the cross to sag relative to the portion 206, when the wreath base is fully loaded with flowers and water, which would result in the portion 206 opening up and the wreath base breaking up.

The rim of the container 201 is provided with a continuous outwardly extending flange 207 which improves the rigidity of the trough and also provides the other additional advantages outlined above.

Figure 20 shows a modification of the container in which the lower end of the main arm 208 of the cross is provided with a spike 209 which is reinformed by a gusset 210. The spike and gusset are integral parts of the moulded plastic container, the spike enabling the cross to be easily supported in the ground.

The base of the container 201 may be provided with rubber feet as an alternative to the spike 209 described above.

The container could also be supported in an inclined position by a support similar to 8 which clips into the flange 207.

The strips 202, 203 and 204 have a tapering cross section which is somewhat exaggerated in Figure 19. Also the sides of the arms of the container are inclined.

The wreath base is assembled by placing the strips 202, 203, 204 upside down in a jig which holds them in the correct relative position and which precompresses them by shortening the lengths thereof. The inside of the container is then coated with a suitable adhesive, for example the adhesive sold under the trade name "Evo Stick", and the inverted container is then placed over the strips so that the strips all partially enter the container. The partly assembled wreath base is then righted and placed in a press where the strips are pressed fully home into the container.

As described above, the strips of foam are subjected to an end loading, as indicated by the arrows X in Figure 17 when they are fully pressed home into the trough. This end loading is achieved by cutting the length of each of the strips slightly oversize, so that when placed in the jig they are longitudinally compressed. For example, if the foam strip 202 is 2 to 3 feet in length, as is likely for the main arm of the cross,

it should be cut $\frac{1}{8}$" to $\frac{1}{4}$" over-size.

Since the ends of the strips are cut substantially square and the strips are somewhat longer than the container arms, the inclined ends of the arms of the container will further compress the strips as they are inserted into the arms. The ends of the container arms are inclined slightly, due to the "draft" of the mould in which the container is made.

Although there will be a small amount of compressive loading transversely of the arms, as indicated by the arrows Y in Figure 17, this is kept to a minimum by making the cross-sectional shape of those parts of the foam strips within the container substantially the same as that of the container as shown in Figure 19 to prevent the sides of the container from bulging apart.

By subjecting the strips of foam to end loading as described, the overall rigidity of the wreath base is greatly increased and the strips do not come out of the container.

The strips 202, 203 and 204 may be cut from a sheet of material on a machine of the form shown in Figures 21 to 24. Referring to Figure 21 the machine comprises a table divided into two parts 220 and 221 on either side of cutting head 222. The cutting head is disposed in a slot 223 in the table and is vertically adjustable in the slot to accommodate varying thicknesses of foam sheet.

The part 220 of the table carries a magazine 219 for foam sheets 227 which are stacked one on top of the other.

A pneumatically operated feed cylinder 228 is provided which displaces a pusher 229 which is arranged to push the bottom sheet of foam from the magazine and through the cutting head 222 when the cylinder 228 is actuated. Guides 230 are provided on the part 221 of the table to control the foam strips as they issue from the cutting head.

Above the part 221 of the table are supported, on a structure not shown, a number of cutting blades 231 which are arranged to be vertically displaced by pneumatic cylinders 232. The number and position of the cutting blades 231 is dependent on the size of the foam sheet fed to the cutting head 222 and also the length of the strips of foam required in order to make up the wreath base. In the arrangement shown in Figures 21 and 22 the length E of each sheet of foam fed through the cutting head is arranged to be equal to the length D of the main arm of the cross plus twice the length C of the two parts of the other arm of the cross. Thus only two cutting blades 231 are necessary in order to divide the strips of foam into two lengths C and one length D.

Figure 23 and 24 show the cutting head 222 in greater detail. The head comprises a framework 240 which supports a number of cylinders 241 around which a hardened spring steel band 242 is stretched in a sinuous path. The two end cylinders 241*a* and 241*b* are both provided with a slot 243 into which the end of the band 242 extends. Each of the cylinders 241*a* and 241*b* is pinned to a bolt 244 by a cross pin 245 so that rotation of the head 246 of the bolt using a suitable spanner will rotate the cylinders 241*a*, 241*b* and hence tension the band 242. When the desired band tension is achieved, the cylinders 241*a* and 241*b* are locked to the frame 240 by means not shown.

In Figure 23 part of the frame 240 is removed to show the cylinders on which the band 242 is mounted. The position in which the foam sheet is presented to the cutting head is shown by the dotted rectangle 250 in Figure 23 and as will be appreciated the sheet is cut up into a number of strips of tapering cross section, one of which is indicated by the shaded area 251 in Figure 23. There is thus very little wastage in cutting the foam sheet up into strips, portions 252 at the edge of the sheet being the only scrap material produced by the cutting operation.

The machine operates as follows. The bottom sheet 227 of foam is pushed through the cutting head 222 by the operation of the cylinder 228 and, after passing through the cutting head, engages a stop or other trigger means when the strips have reached the position shown in Figure 22. Engagement of the stop or trigger means causes the cylinders 232 to be operated thus downwardly displacing the cutting blades 231 and severing each of the strips into two lengths C and one length D as described above.

Sheets of foam can be cut into strips by being manually pushed through the cutting head 222.

Figure 25 shows a wreath base in the shape of a cushion. The base comprises a plastics container 260 which includes an integrally mounted handle 261 and the two pieces of foam 262 which are butt jointed and bonded into the trough. The two pieces of foam are cut slightly oversize and precompressed in a jig before being inserted into the container. The draft on the side walls of the container imparts additional compressive stress to the pieces 262 as they are inserted into the container. The base of the container is strengthened with reinforcing ribs 263 and the handle 261 is reinforced with gussets 264.

WHAT WE CLAIM IS:—

1. The flower holder of the type described in which the water absorbent material is in a state of compression.

2. A holder according to claim 1 wherein the water absorbent materials is in a number

of pieces, each of which is in a state of compression, so that the edges of adjacent pieces closely abut one another.

3. A holder according to claim 1 and claim 2 wherein the water absorbent material is adhered in position in the container.

4. A holder according to any one of the preceeding claims wherein at least one edge of the container is formed with an outwardly extending flange.

5. A holder according to claim 4 wherein a cage extends over part of the water absorbent material projecting from the container, the cage being secured to the flange.

6. A holder according to any one of the preceding claims wherein the base of the container is provided with feet having friction material for engaging a supporting surface.

7. A holder according to any one of the preceding claims wherein the container has a U-shaped cross section with sides which converge towards the base of the U.

8. A holder according to any one of the preceding claims wherein the container is annular and the water-absorbent material is in a number of arcuate pieces whose ends closely abut due to the state of compression of the pieces.

9. A holder according to any one of claims 1 to 7 wherein the container is in the form of a cross and the water absorbent material is in a state of compression in directions along the arms of the cross.

10. A holder according to claim 9 wherein the ends of the cross arms of the container are inclined so that they converge towards the base of the container.

11. A holder according to claim 9 or claim 10 wherein one end of one cross arm of the container is provided with an external spike for insertion into the ground.

12. A holder according to any one of claims 9 to 11 wherein the base of the container adjacent to the inter section of the cross arms is provided with reinforcing ribs.

13. The method of making a flower holder of the type described comprising inserting the water absorbent material into the container so that said material is in a state of compression within the container.

14. The method according to claim 13 wherein the water absorbent material is in a number of pieces which are precompressed before being inserted into the container.

15. The method according to claim 13 or 14 wherein the flower holder is annular and the water absorbent material is in a number of arcuate pieces, said pieces being precompresssed end to end by insertion into a compression ring and then being moved, while in a state of compression, from the ring into the container.

16. The method according to claim 15 including the step of cutting a plurality of arcuate pieces of water absorbent material from a sheet thereof simultaneously with tubular cutters.

17. The method according to claim 14 wherein the flower holder is in the form of a cross and the water absorbent material is in the form of strips which, before insertion into the container, are longer than parts of the container they occupy in the finished holder.

18. The method according to claim 17 including the step of cutting a plurality of strips of water absorbent material from a sheet thereof so that the edges of the strips converge.

19. The method according to any of claims 13 to 18 wherein the water absorbent material and container are so shaped and dimensioned that the insertion of the water absorbent material into the container compresses said material.

20. The method according to any one of claims 13 to 19 including the step of adhering the water absorbent material in the container.

21. A flower holder substantially as hereinbefore described with reference to and as shown in Figure 1 of the accompanying drawings.

22. A flower holder according to claim 21 but having feet substantially as hereinbefore described with reference to and as shown in Figure 2 of the accompanying drawings.

23. A flower holder according to claim 21 but having a support substantially as hereinbefore described with reference to and as shown in Figure 3 of the accompanying drawings.

24. A flower holder according to claim 21 including a cage substantially as hereinbefore described with reference to and as shown in Figure 4 of the accompanying drawings.

25. A flower holder substantially as hereinbefore described with reference to and as shown in Figures 17 to 19 of the accompanying drawings.

26. A flower holder according to claim 25 but having a spike substantially as hereinbefore described with reference to and as shown in Figure 20 of the accompanying drawings.

27. A flower holder substantially as hereinbefore described with reference to and as shown in Figure 25 of the accompanying drawings.

28. A method of making a flower holder substantially as hereinbefore described with reference to Figures 12 to 16 of the accompanying drawings.

29. A method of making a flower holder substantially as hereinbefore described with reference to and as shown in Figures 5 to 16 of the accompanying drawings.

30. A method of making a flower holder substantially as hereinbefore described with reference to Figures 17 to 19 and 21 to 24 of the accompanying drawings.

FORRESTER, KETLEY & CO.,
Chartered Patent Agents,
Rutland House, 148 Edmund Street,
Birmingham B3 2LD, and
Forrester House, 52 Bounds Green Road,
London N11 2EY.

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1979.
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

1 544 630 COMPLETE SPECIFICATION
6 SHEETS

FIG.1

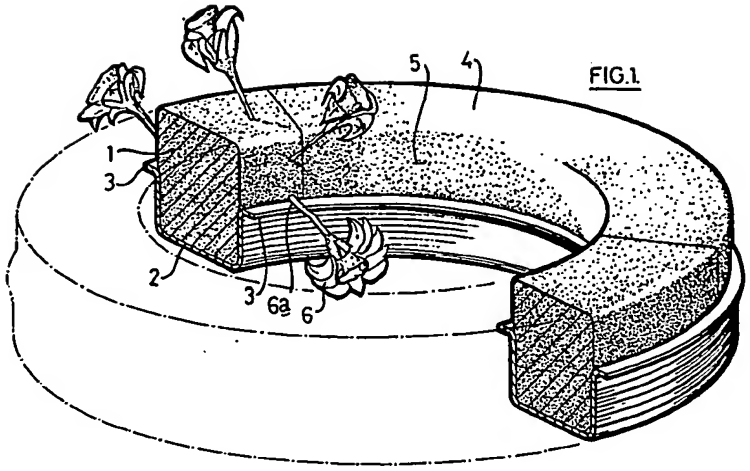


FIG2.

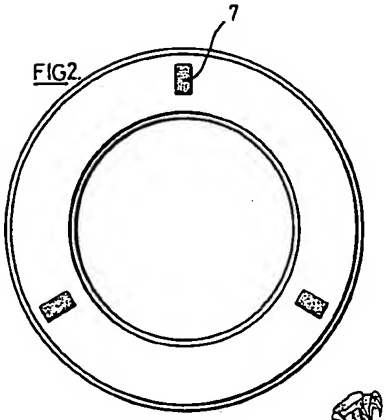
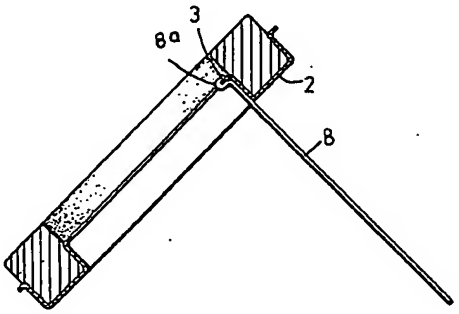


FIG. 3.



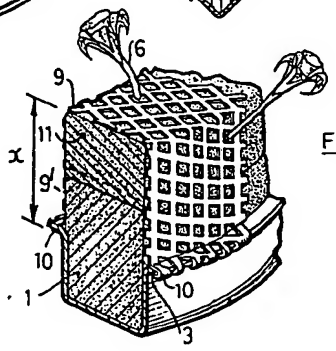


FIG. 4.

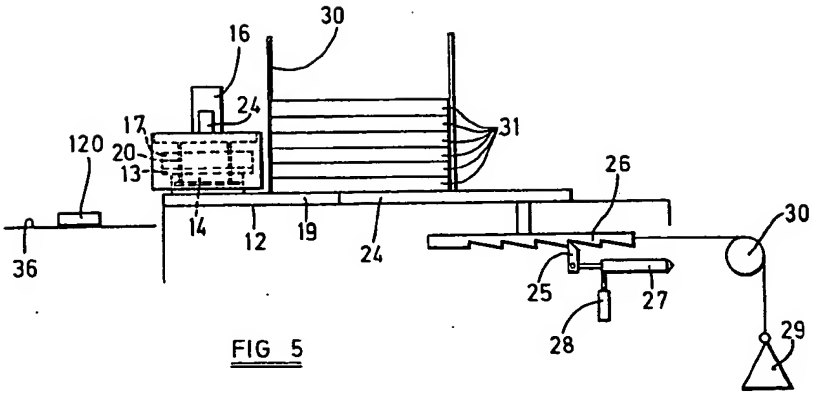


FIG 5

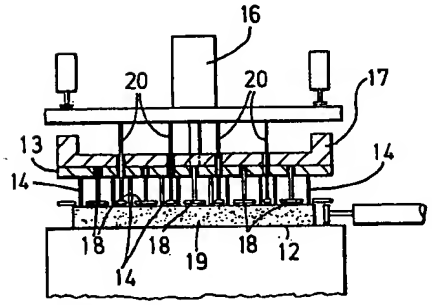


FIG 6

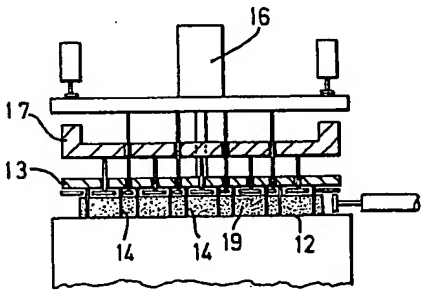


FIG 7

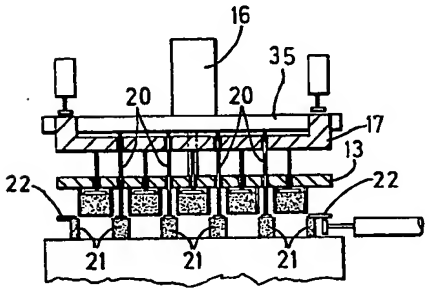


FIG 8

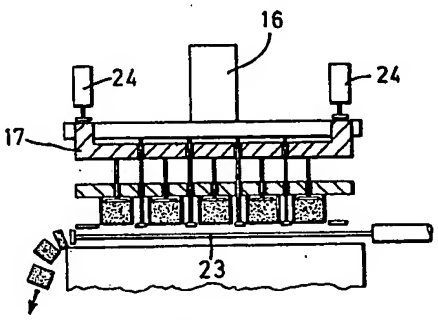


FIG 9

1544 630 COMPLETE SPECIFICATION
6 SHEETS This drawing is a reproduction of the Original on a reduced scale.
SHEET 3

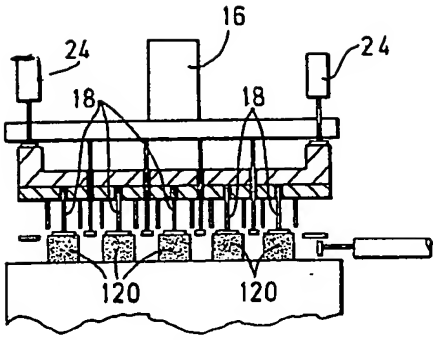


FIG 10

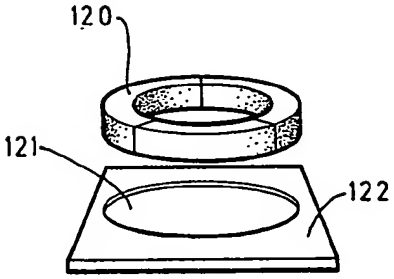


FIG 12

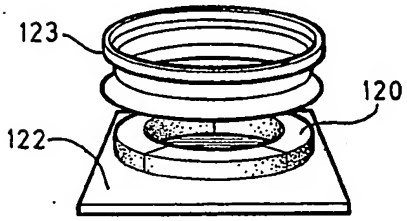


FIG 13

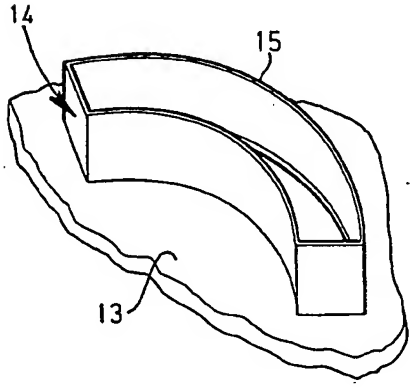


FIG 11

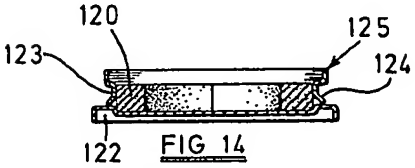


FIG 14

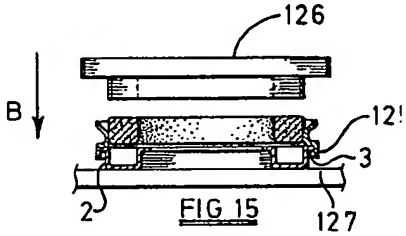


FIG 15

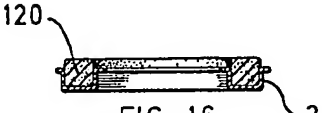


FIG 16

1 544 630 COMPLETE SPECIFICATION
6 SHEETS

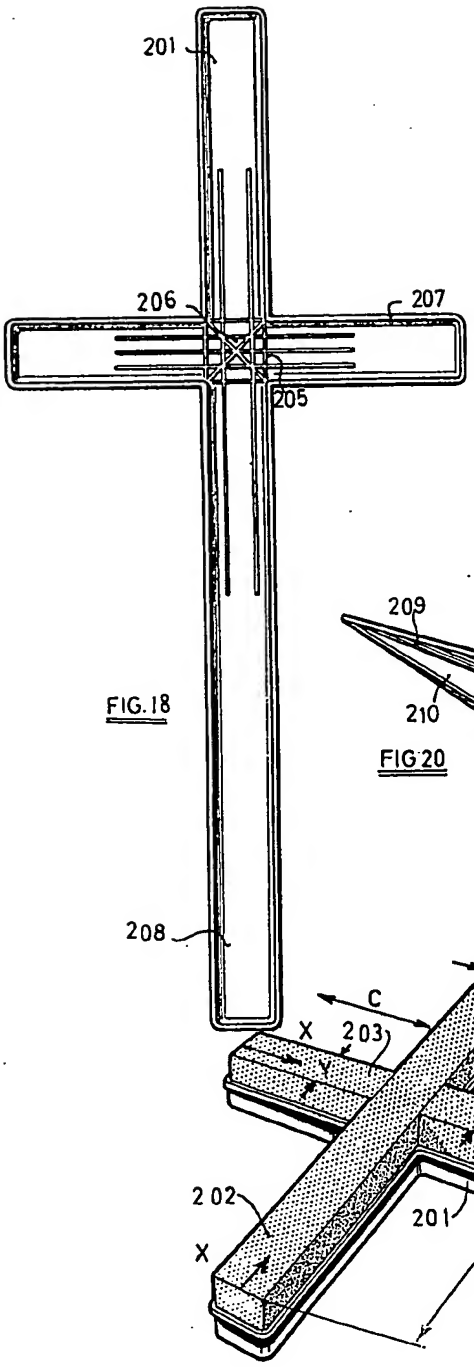


FIG. 18

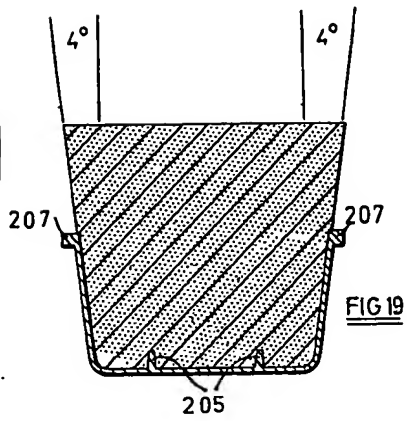


FIG 19

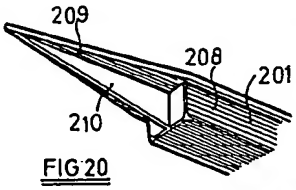


FIG 20

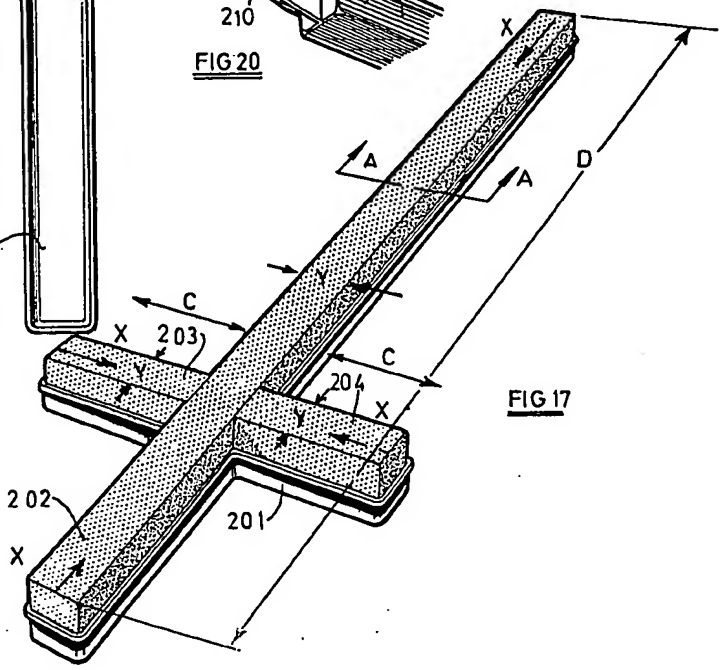


FIG 17

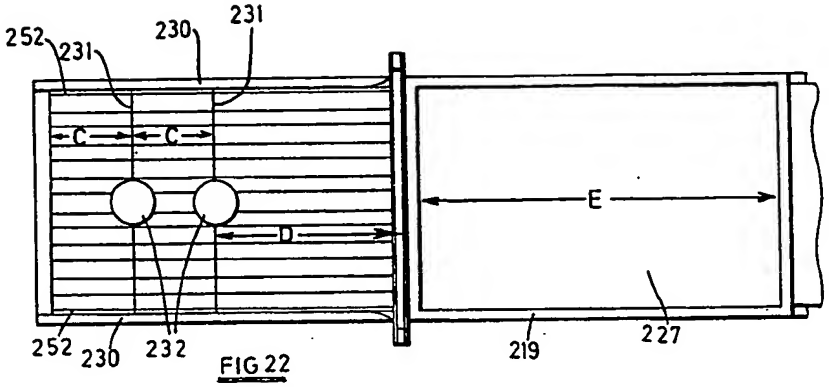


FIG 22

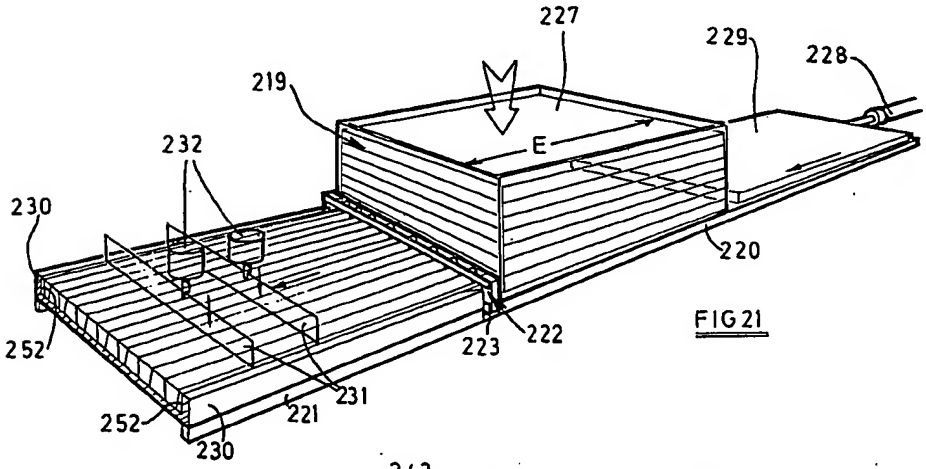


FIG 21

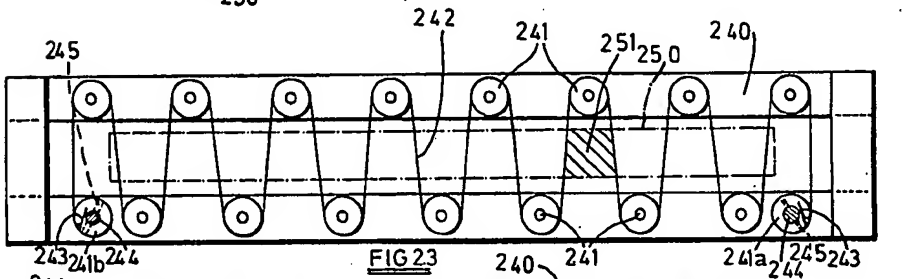


FIG 23

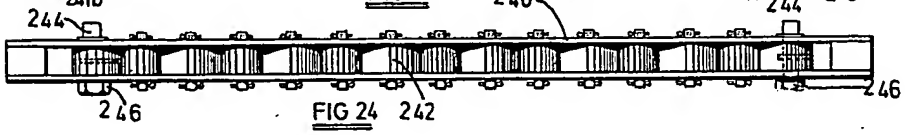


FIG 24

1 544 630
6 SHEETS

COMPLETE SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale.
SHEET 6

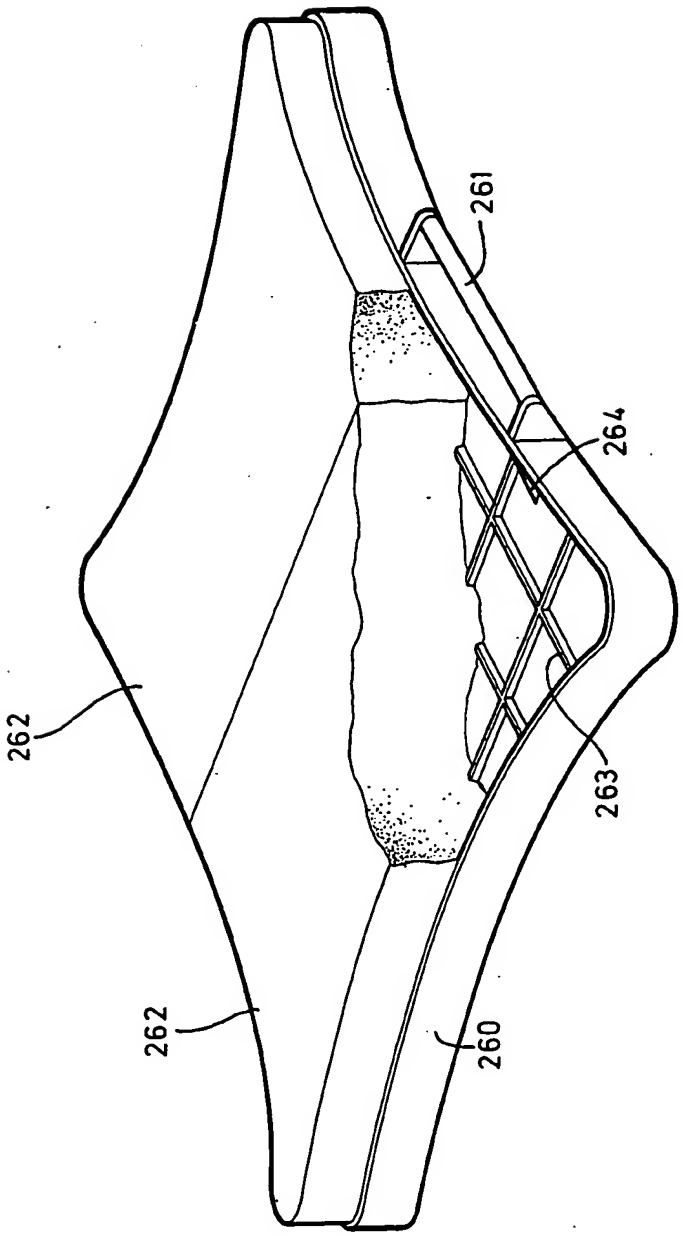


FIG 25